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November 23, 2004

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RE: Final Removal Design/Removal Action Work Plan
Greiner's Lagoon (Site Id. # 0550)
Administrative Order by Consent
Effective Date: August 12, 2004
Docket No. V-W-'04-C-793

Dear Ms. Toney and Mr. Williams:

Enclosed please find the Final Removal Design/Removal Action (RD/RA) Work Plan for the Greiner's Lagoon Site, Sandusky County, Ohio, required by the Administrative Order CERCLA Docket No. V-W-'04-C-793 signed July 13, 2004.

The purpose of this correspondence is to remit on behalf of The Lubrizol Corporation (Lubrizol) information and corresponding submittals in accordance with the Administrative Order on Consent (AOC) executed on July 13, 2004 by US EPA in addition to those documents expressly incorporated by reference in the AOC including the Statement of Work (SOW) developed to address conditions at Greiner's Lagoon (Site).

This submittal contains the Final RD/RA Work Plan as required by paragraph 15(c) of the AOC and is being submitted for approval prior to initiation of design activities as required by paragraph 15 (e) of the AOC. Please be advised that consistent with Mr. William's letter to the Ohio EPA, dated November 17, 2004, Lubrizol will address the Ohio EPA comments 1 through 5 on the Draft RD/RA Work Plan in future design documents. As no comments or requests for modification have been received from USEPA, the Final RD/RA Work Plan being submitted is identical to the Draft

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Greiner's Lagoon Site
November 23, 2004
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Work Plan submitted on October 8, 2004. Three copies of the final work plan are attached as required by paragraph 19 (b) of the AOC.

Please be advised that that Section 4.0 – Community Relations of the Work Plan reflects a very general approach to the conduct of community relations activities for the Greiner's Lagoon Site. Based on our meeting in Bowling Green, Ohio on Tuesday, September 28, 2004, we agreed to begin discussions on community relations activities appropriate for the Site. We have left the subtasks outlined in the Work Plan general in nature pending these discussions. Lubrizol remains committed to assisting USEPA in the conduct of community relations activities throughout the RD/RA implementation.

At our meeting on September 28th, Lubrizol/ERM advised USEPA and OEPA that the RD/RA Work Plan would contain a schedule in accordance with Attachment 1 of the SOW. We discussed the RD/RA schedule and agreed that Lubrizol, USEPA and OEPA would use our best efforts to target the 2005 planting season for installation of the phytoremediation cap. Accordingly, Lubrizol agreed to use its best efforts to expedite deliverables to achieve the 2005 planting season target. Similarly, USEPA and OEPA agreed to use their best efforts to meet the estimated EPA review periods listed on Attachment 1 of the SOW.

Consistent with the terms of the AOC Lubrizol works closely with ERM, our designated contractor to address conditions at the Site. In instances where technical documents are prepared with cooperative partnership of ERM's technical assistance and in recognition that expeditious and timely submissions facilitate the objective of achieving a 2005 planting season, Lubrizol authorizes the transmission of such documents directly from ERM to USEPA and OEPA under cover letter properly referencing the subject matter and ERM signature.

If you have any questions or comments regarding this submittal, please contact me.

Best regards,

The Lubrizol Corporation



Kenneth A. Frato
Project Coordinator

Enclosure

cc: Ghassan Tafla, PM – Ohio EPA
Lisa Novosat Gradert, Esq. - Lubrizol
Bill Lozier – ERM
Roberta Fowlkes – CCF Associates

**FINAL
REMOVAL DESIGN/REMOVAL ACTION
WORK PLAN**

**GREINER'S LAGOON SITE
FREMONT, OHIO**

Submitted to
U.S. EPA Region V
77 W. Jackson Blvd.
Chicago, Illinois 60604

Submitted by
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| Attachment 1 | RD/RA Schedule |
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1.0 INTRODUCTION

1.1 PURPOSE OF THE WORK PLAN

On behalf of The Lubrizol Corporation (Lubrizol) Environmental Resources Management, Inc. (ERM) has been retained as the *supervising contractor* to prepare a Removal Design/Removal Action Work Plan (RD/RA Work Plan) for Greiner's Lagoon (Site). This RD/RA Work Plan has been prepared in accordance with the Administrative Order by Consent (AOC) signed July 13, 2004 and effective August 12, 2004 in addition to the attached and incorporated by reference Statement of Work (SOW). The purpose of this RD/RA Work Plan is to define the scope of work and set forth a proposed schedule for implementation of the RD/RA.

The removal design (RD) consists of those activities to be undertaken by Lubrizol to develop the general provisions, final plans and specifications, and specific requirements necessary to translate the Non-Time Critical Removal Action and the Proposed Plan for Cleanup of the Site issued by US EPA on February 12, 2003 into the remedy to be constructed in the RA phase.

The removal action (RA) consists of those activities, except for the O&M, to be undertaken by Lubrizol to implement the removal action at the Site.

1.2 SITE DESCRIPTION AND BACKGROUND

On July 30, 1991, Lubrizol entered into an Administrative Order on Consent (AOC 1991) with USEPA Region V pursuant to Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Under the terms of the AOC 1991 Lubrizol developed an Engineering Evaluation/Cost Analysis (EE/CA) for the Site. The EE/CA Report (May 2001) identified and evaluated several alternatives for a non-time critical removal action. One of the remedy alternatives included the use of a technology known as phytoremediation. Phytoremediation involves the use of plants to promote remediation of soil and/or ground water, to prevent soil erosion, and to control infiltration into and from subsurface strata. Based on the results of the EE/CA site investigations and risk assessments, phytoremediation was selected as the preferred removal action for the Site.

Following completion of the EE/CA, the USEPA issued the Proposed Plan on February 12, 2003 that provided for the implementation of the phytoremediation remedy. As a result, USEPA and Lubrizol entered into an AOC effective on August 12, 2004 for completion of the Removal Design/Removal Action. This RD/RA Work Plan has been prepared by ERM pursuant to Paragraph 15(b) of the AOC.

2.0 *SELECTED REMEDY*

2.1 *REMOVAL ACTION OBJECTIVES*

The objective and scope for the removal action at the Greiner's Lagoon Site is to mitigate the risks to human health and the environment as defined in the EE/CA.

The human health risk assessment identified the following risks slightly above USEPA threshold values:

- Carcinogenic Risks – Exposure to On-Site Soil by the Future Construction Worker and Adolescent Trespasser
- Non-Carcinogenic Risks – Exposure to On-Site Soil by the Future Construction Worker and Exposure to On-Site Shallow Ground Water to the Future Construction Worker

The risk assessment determined that there are no off-site risks posed by the Site. The on-site risks to the future construction worker and to the adolescent trespasser will be mitigated through the use of site controls (fencing), soil cover, phytoremediation, and institutional controls. These elements are further described in this Work Plan in Section 2.3.

The removal action (RA) will provide for short- and long-term minimization of the potential for human exposure to constituents of concern at levels that would result in calculated risks above USEPA threshold values for the Site. The RA will be implemented to the extent practical in accordance with applicable, or relevant and appropriate requirements (ARARs). The selection of ARARs is dependent on the hazardous substances present at the Site, site characteristics and the activities required to implement the RA. Based on the use of phytoremediation as the preferred RA the following ARARs are selected for the Site:

1. USEPA MCLs as specified by the Safe Drinking Water Act for groundwater.
1. PCBs in waste remaining on site at concentrations not greater than 100 mg/kg in soil for fenced and capped areas with deed restrictions.
2. PCBs in waste remaining on site at concentrations not greater than 50 mg/kg in soil for fenced and capped areas without deed restrictions.
3. Requirements per 40 CFR 264.310(a) for closure of landfills

- to function with minimum maintenance.
4. Requirements per 40 CFR 264.320(a) for closure of landfills to promote drainage and minimize erosion or abrasion of the cover.
 5. Requirements per 40 CFR 264.117(c) for closure of landfills to restrict post-closure use of the property by restricting access and providing ongoing security.
 6. Requirements per 40 CFR 264.228(b) and 40 CFR 264.310(b) for closure of landfills to prevent run-on and run-off from damaging the cover.

During the design process other ARARs may be identified which are applicable to the selected remedy. These will be evaluated and steps will be taken to comply with the appropriate requirements as the design process proceeds.

2.2

PERFORMANCE STANDARDS

Groundwater monitoring will be conducted for three years after construction is completed to monitor site-specific ground water parameters (i.e., to confirm there are no significant changes in the ground water quality). After the first three years of performance monitoring, the analytical data will be evaluated to determine the frequency of and analytical parameters for additional monitoring.

Five years after construction of the phytoremediation remedy, USEPA, in consultation with OEPA, will determine whether a significant reduction in the volume of leachate releases (seepage breakouts) has occurred. If no significant reduction in the volume of and contaminant concentrations in leachate releases (seepage breakouts) has occurred, then USEPA, in consultation with OEPA, will evaluate whether additional response actions are necessary. This evaluation will include, but may not be limited to, collection of data, a human health risk assessment, and cost projections for any potential future remediation. Furthermore, if the switch grass cover, cottonwood or hybrid poplar trees fail to survive and flourish, additional flora must be installed that is capable of surviving and flourishing.

2.3

SELECTED REMOVAL ACTION (RA)

USEPA has determined that the appropriate removal action at the Site consists of the construction of a phytoremediation landfill cap (phyto cap)

over the existing cap, monitoring of the ground water, and institutional controls.

Phytoremediation will be implemented using a tall grass cover and a groundwater tree barrier. The area of the Site to be covered is 3.2 acres, which will be fenced to control access and to help ensure the long-term integrity of the phytoremediation system. All existing vegetation will be cleared initially. The northern portion of the Site will be amended with soil to improve soil quality in the soft areas. The entire site will be amended with sulfur to lower soil pH. One foot of topsoil will be placed on the impacted soils to help promote rapid root development and to minimize exposure to bare areas.

The design of the phytoremediation cover will include surface water management through the use of drainage ditches and site grading to reduce water infiltration into the affected areas. Switchgrass will be used as the vegetation for the phytoremediation cover. Hybrid poplars and cottonwood will be used for the phytoremediation groundwater tree barrier. As outlined in the Proposed Plan, the construction of the phytoremediation cap is expected to eliminate or significantly reduce contaminated leachate releases (seepage breakouts) from the Site.

The details of the ground water monitoring program will be developed when the detailed design and operation and maintenance plans are prepared. One additional monitoring well will be installed east of monitoring well MW-13 following the RA.

In addition, improved fencing and security will be installed to control access to the site. Lubrizol will use its best efforts to incorporate institutional controls, including deed restrictions, on the Site although it is noted that Lubrizol currently does not own the Site. A long-term (30-year) operation and maintenance program will also be incorporated in the RA.

3.0 REMOVAL DESIGN

The RD will be completed in accordance with the SOW and this RD/RA Work Plan. The RD will be initiated upon approval of this Work Plan by the USEPA. The RD will proceed according to the schedule outlined herein in Section 8.0.

1.0 PROJECT PLANNING.

The purpose of this task is to determine how the site-specific RA objectives and performance standards, as specified in the Proposed Plan, will be met. The following activities will be performed as part of the project-planning task:

1.0.0. *Designate Supervising Contractor*

In accordance with Paragraph 10 of the AOC, Lubrizol has designated Environmental Resources Management, Inc, (ERM) as the supervising contractor for the RD/RA.

1.0.0 *Evaluate Existing Information*

ERM has reviewed and evaluated the existing data and documents, including the EE/CA, the Proposed Plan, and other data and documents as needed to prepare the RD. ERM has determined that sufficient information is available to proceed with the design of the remedy for the Site.

3.2 CONDUCT SITE VISIT/MEETING

In accordance with Paragraph 15(a) of the AOC, a Site visit/meeting with the USEPA OSC (in addition to OEPA representatives) was conducted to discuss the initial stages of the project, to developing a conceptual understanding of the RD requirements for the Site and proposed schedule for implementation. This meeting was conducted on September 28th, 2004 at OEPA's Northwest District Office.

3.3 ADDITIONAL DATA COLLECTION

No additional data collection to facilitate the design is anticipated at this time. Therefore, the RD/RA Work Plan submittals outlined in Paragraph

15(d) of the AOC are not required. It is anticipated that one additional monitoring well will be installed east of MW-13 following the RA. The appropriate submittals required for the installation will be included in the O&M Manual.

3.4

REMOVAL DESIGN (RD) MILESTONES AND DELIVERABLES

Major milestones, meetings and deliverables of the RD are described in this section. Lubrizol understands that USEPA will facilitate receipt of reviews and comments by OEPA in order to collectively promote expeditious review and approval.

3.4.1.

Basis of Design Meeting

A Basis of Design Meeting will be held to present to USEPA/OEPA the conceptual design basis and approach for the RD submittal. The meeting will present conceptual construction drawings, phasing/logistics diagrams, and identification of design issues needing resolution. This meeting will be held after approximately 40% of the final design process has been completed.

Key issues expected to be discussed include capping procedures, runoff control, planting of vegetation, and schedules for implementation of the RA. A Basis of Design Memorandum will be submitted to USEPA/OEPA following the meeting. In order to expedite the design process the detailed design will continue according to the time schedule and comments, if any, will be incorporated into the detail design as appropriate.

1.0.0.

Prefinal Design

The Prefinal Design will function as the draft version of the Final Design. The Prefinal Design will address comments generated from the Basis of Design Meeting and will reflect any modifications of the design as a result of incorporation of these comments. A complete set of construction drawings, general and technical specifications, and engineering estimates will be submitted to USEPA/OEPA, and will be approved by a Professional Engineer registered in Ohio. Recommendations that have been approved by the USEPA will be incorporated into the Prefinal design drawings and specifications.

The following detail plans, as a minimum, will be developed to enable construction of the phytoremediation system at the Site.

1. Cover Sheet with location (State and Local Maps)
1. Existing Topography
2. Intermediate Topographic Plan for Soft Area of Site
3. Details of Soil Mixing and Amendments for Soft Area of Site
4. Final Topographic Contours
5. Cross Sections of Site
6. Landscape Plan for Switchgrass and Trees
7. Site Drainage Plan
8. Site Drainage Profiles/Details
9. Groundwater/Surface Water Monitoring Locations
10. Stormwater Controls
11. Fencing and Access Controls

Following completion of the detail plans; specifications will be developed to enable the contractor to complete the project. The specifications will be prepared in standard EJCDC (Engineers Joint Contract Documents Committee) format and will provide both General Project and Specific Detail specifications for conduct of the work. The specifications will be included with the Prefinal Design submittal.

Lubrizol will participate in a Prefinal Design review meeting (if needed). Lubrizol will also consolidate and respond to Prefinal Design review comments. A written response for each comment shall be provided to USEPA for written approval before incorporating the necessary changes into the design. If no comments on the Prefinal Design are received from USEPA, the Prefinal Design will be used for the Final Design. If comments are provided, the Final Design will be completed as outlined below.

3.4.3 Final Design

After USEPA's review and comment on the Prefinal Design, the Final Design will be submitted. The Final Design documents shall include a complete set of construction drawings, general and detail specifications, and engineering estimates, and will be certified by a Professional Engineer registered in Ohio. USEPA's approval of the Final Design is required before initiating the RA, unless specifically authorized by the USEPA. The Final Design submittals will be delivered within 28 days after receipt of USEPA's comments.

4.0

COMMUNITY RELATIONS

The USEPA will work collectively with Lubrizol to conduct community relations activities throughout the RD and implementation of the RA. Lubrizol will perform the following subtasks:

1.0

DEVELOPMENT OF A COMMUNITY RELATIONS PLAN.

Lubrizol will work with USEPA to develop a community relations plan to inform neighbors and other stakeholders and to provide assistance to those who have questions or concerns regarding the RD/RA.

2.0

PREPARATION OF COMMUNICATION MATERIALS.

Lubrizol will work with USEPA to prepare fact sheets, letters, news releases and other materials that inform the public about activities related to the final design, a schedule for the RA, and activities to be expected during construction. Materials will be prepared on an as needed basis during the RA to keep the community informed of ongoing activities.

3.0

TECHNICAL SUPPORT.

Lubrizol will, at the USEPA's request, provide technical support for community relations, including community meetings. This support may include preparing technical input to news releases, briefing materials, other community relations vehicles, arranging for Site tours upon request, and helping USEPA OSC to coordinate with local agencies as requested.

4.0

PUBLIC MEETING SUPPORT.

Lubrizol will work with the USEPA to arrange public meetings, availability sessions, and open houses. Lubrizol will prepare presentation materials, make logistical arrangements, and provide other support as needed. Lubrizol will assist USEPAOSC in preparing technical briefing materials.

1.0

REMOVAL ACTION

Following approval of the RD by USEPA, Lubrizol will initiate the RA Phase. The RA Phase will include the preparation appropriate Construction Plans for implementation of the RA. Construction Plans will be submitted to USEPA/OEPA for review and approval.

1.0

CONSTRUCTION PLANS

Lubrizol will prepare and submit the appropriate construction phase plans. Such plans are expected to include:

- Construction Schedule which will detail construction activities and provide benchmarks for completion of significant work items such as final stabilization of the soft area, completion of the soil cap and planting of vegetation.
- Site Management Plan that will include both short and long term access and stormwater management activities.
- Construction Quality Assurance (CQA) Plan to specify testing protocols, schedules and requirements. Selected laboratories will be specified for each test procedure to be conducted off site. On-site test procedures will be specified.
- Health and Safety Plan(s) (HASP) are to be developed by the selected construction contractor(s) for use during site construction activities. This HASP will be developed in accordance with 29CFR1910 requirements.
- Sampling and Analysis Plan (SAP) for groundwater, surface water and soil.
- Data Management Plan to include procedures for collection, tabulation and retrieval of site construction and CQA test data.

The Construction Plans will be submitted within 90 days after USEPA's approval of the Final Design.

5.1 CONSTRUCTION MANAGEMENT

Lubrizol will develop and maintain a system to monitor and manage the schedule of the RA. Lubrizol will specify the process to continuously update the information in the system as a result of engineering network analyses and changing field conditions.

5.3 REPORTING

Lubrizol will prepare monthly reports in accordance with the AOC and SOW regarding the progress of the RD/RA process to USEPA/OEPA.

6.0

OPERATION AND MAINTENANCE (O&M)

The purpose of O&M is to perform the activities necessary to protect the integrity of the remedy and to evaluate system performance. These tasks will be conducted following initiation of construction. The O&M Manual will contain procedures to allow for O&M of the Site during a 30-year post closure period.

1.0

PREPARATION OF AN O&M MANUAL.

The O&M Manual will include, but not be limited to the following:

- Quality Assurance Plan for O&M including a description of routine monitoring tasks, description of required laboratory tests and their interpretation, required data collection, and location of monitoring points comprising the points of compliance monitoring.
- Alternate procedures to prevent releases or threatened releases of hazardous substances, pollutants, or contaminants, which may endanger health and the environment or cause exceedances of any cleanup standard.
- HASP for O&M, including a description of precautions and necessary equipment for site personnel, safety tasks required in event of systems failure, and safety tasks necessary to address protection of nearby residents.
- Records and reporting mechanisms required including operating logs, laboratory records, records for operating costs, mechanism for reporting emergencies, personnel and maintenance records, and reports to the USEPA/OEPA.

The O&M Manual will be submitted to USEPA/OEPA in accordance with the schedule developed during the Detail Design. Lubrizol will review and update the O&M Manual, as necessary, to include, for example, as-built drawings. The revised O&M Manual will be submitted to USEPA/OEPA in accordance with the schedule developed during the Final Design.

6.2

TRAINING PLAN

Lubrizol will provide necessary training to the O&M personnel necessary to operate the RA and to respond to unanticipated occurrences. The Training Plan will include the following:

- Maintenance procedures for upkeep of the vegetation systems, inspection and minor repair to the cap system and management of the stormwater conveyance system.
- Sampling of groundwater, surface water and soil as specified in the O&M Manual.
- Recordkeeping and reporting of operating conditions, maintenance inspections, maintenance work undertaken, and required sampling results.
- Response to unanticipated occurrences.

6.3

POST-CLOSURE AND SYSTEM PERFORMANCE MONITORING PLAN

Lubrizol will prepare a Post-Closure and System Performance Monitoring Plan to monitor the natural attenuation to ensure long-term protection of human health and the environment. The Post-Closure and System Performance Monitoring Plan will be included in the O&M Plan submittal.

6.4

CORRECTIVE ACTION PLAN (CAP)

Lubrizol will identify potential system failures and develop contingency corrective action plans, if necessary, to address these items. Additional CAPs will be developed to respond to unanticipated occurrences, if necessary. The CAP will be included in the O&M Plan submittal.

PROJECT COMPLETION AND CLOSE OUT

ERM will conduct the final inspection to verify completed work and prepare a summary Removal Action Report.

A draft Removal Action Report will be prepared in accordance with the schedule developed in the Final Design Construction Plans and submitted to USEPA/OEPA for review. The Removal Action Report will summarize RA events, performance standards and construction quality control, construction activities, O&M, and certification that the remedy is operational and functional.

The USEPA and Lubrizol will conduct a final inspection within 30 days of submission of the Draft RA Report. The purpose of the inspection is to determine whether all aspects of the plans and specifications have been implemented at the Site, and whether the remedy is operational, and has been implemented in accordance with the SOW. The USEPA may require repeated inspections in order for the USEPA to inspect work that was not completed in accordance with the SOW, as determined by the USEPA during a previous inspection.

Lubrizol will prepare and submit a Final Removal Action Report to the USEPA OSC/OEPA within 28 days after receipt of USEPA's comments on the draft Removal Action Report and final inspections. The USEPA shall then issue a Notice of Completion stating that Lubrizol has successfully implemented RD/RA activities and that such activities have been completed in accordance with the AOC and SOW.

On-going system O&M and Post-Closure and System Performance Monitoring will be conducted by Lubrizol in accordance with the Final O&M Manual. Monitoring of the RA to evaluate its effectiveness will be conducted during the first five years. If after five years, the monitoring demonstrates that the technology is not effective, the RA will be enhanced, supplemented or replaced.

SCHEDULE OF EVENTS/MILESTONES

A schedule has been developed incorporating milestones for the RD/RA work and associated review meetings and is based on the time schedule contained in the SOW. This schedule is presented in Attachment 1 of this Work Plan.

The proposed schedule is based upon the assumption that those milestones requiring USEPA concurrence will be conducted expeditiously after receipt of such plans, documents and/or reports. This proposed schedule is subject to revision based on timely response from the USEPA.

The project initiation has been set as the Effective Date of the AOC (August 12, 2004). As shown in Attachment 1, it is assumed that the design will be conducted through the winter of 2004 into the spring of 2005. It is assumed that the final design will be approved by the USEPA in May, 2005.

Following this milestone, the construction plans will be developed. It is assumed that these plans will be completed and approved by the USEPA in August, 2005.

The schedule shows that the construction phase will be conducted through roughly mid-November 2005 and then activities will be suspended until mid-April 2006. This is due to the anticipated inability to plant and promote the establishment of a good vegetative cover during the winter. The suspension dates are typical of the construction season in northern Ohio. It is assumed that the bulk of the preparatory work for planting (grading, soil amendments) can be completed in 2005, and that the actual planting will be conducted the following spring.

Additional schedules for the RA and O&M phases of the project will be prepared during the Detail Design and RA phases, respectively. These schedules will take into consideration weather factors and contractor availability as well as specific seasonal requirements for planting of selected vegetation.

9.0

MEETINGS AND REPORTING

Meetings between Lubrizol, ERM, and USEPA will be held at appropriate times to review progress of the RD/RA. As specified in the SOW and as appropriate the following meetings and reports are scheduled to review progress and allow for comments and modifications to the RD/RA process.

9.1

BASIS OF DESIGN MEETING

This meeting will be held at approximately the 40% design point and will review the conceptual design basis and approach for the RD submittal. The meeting will present conceptual construction drawings and phasing/logistics diagrams and identification of design issues needing resolution.

1.0.

PREFINAL DESIGN REVIEW MEETING (IF NEEDED)

The Prefinal Design shall function as the draft version of the Final Design. A complete set of construction drawings, general and technical specifications, and engineering estimates shall be submitted at the Prefinal stage, and will be approved by a Professional Engineer registered in Ohio. Recommendations that have been approved by the USEPA will be incorporated into the Prefinal design drawings and specifications.

Lubrizol will consolidate and respond to Prefinal Design review comments generated at the Prefinal Design meeting and through written comments from USEPA following the meeting. A written response for each comment will be provided to USEPA/OEPA for approval before incorporating the necessary changes into the Final Design

9.3

PERIODIC REPORTING

Monthly reports will be prepared in accordance with the SOW and AOC. These reports will contain a summary of the work completed during the reporting period along with projected work for the next period. Significant problems encountered and potential resolution will be discussed.

